Regional Forester Sensitive Species Biological Evaluation For the Cook County Land Exchange Environmental Assessment

Superior National Forest

Aquatic Wildlife Analysis Prepared by:

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Executive Summary

This Biological Evaluation documents the likely direct, indirect, and cumulative impacts to nine Regional Forester sensitive aquatic species of the Cook County Land Exchange Environmental Assessment alternatives.

The intent of this Biological Evaluation is to document the Forest Service's judgment on the likelihood that the project would maintain species viability, well-distributed habitats, and prevent a trend toward federal listing of any species (Forest Plan G-WL-11, S-WL-5).

The findings (determination of effect) of the Biological Evaluation are summarized in Table 1, below.

Table 1 below, lists an effects determination for each species or group of species as defined by: 1) No Impact, 2) Beneficial Impact, or 3) May impact individuals but not likely to cause a trend to Federal listing or loss of viability.

Table 1. Determination of Effects of the Alternatives on Species in Tables 2 and 3.		
Alternative 1		
Species Group	**Determination**	**Rationale**
Aquatic wildlife	No Impact	There would be no impact to any sensitive species since no land exchange would occur. The National Forest System lands would continue to be managed under Forest Plan direction to maintain, protect, or improve habitat for all sensitive species (O-WL-18) and to ensure that management would not lead to a trend toward federal listing (S-WL-5).
Alternative 2		
Species Group	**Determination**	**Rationale**
Aquatic wildlife	May impact individuals but not likely to cause a trend to Federal listing or loss of viability	Future development associated with the exchanged parcels could impact suitable habitat for aquatic RFSS. State and Federal water regulations would help minimize impacts to aquatic RFSS.

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Introduction

This Biological Evaluation was prepared in compliance with the requirements of Forest Service Manual Directives 2671.1 through 2672.43, the Endangered Species Act of 1973 as amended, and the National Forest Management Act of 1976. A Forest-wide Biological Evaluation (USDA 2004a and 2004c) was conducted for the Forest Plan in 2004 (USDA 2004b). The 2004 Forest Plan considered the needs of sensitive species in the development of objectives for Management Indicator Habitats (USDA 2004b). Where appropriate, Management Indicator Habitats were used as indicators to measure the effects of management actions on sensitive species. Where applicable, this Biological Evaluation tiers to the analysis conducted in the Forest Plan Biological Evaluation and Final Environmental Impact Statement.

Project Description

The USDA Forest Service (FS) has an opportunity to complete a land exchange with Cook County. The FS would acquire approximately 1,910 acres from Cook County: see Land List in Appendix D. In exchange, the FS would convey ownership of the federal land of up to 1,580 acres to Cook County; see Land List in Appendix E. There are two alternatives:

1. Alternative 1 – No Action: there would be no changes to the existing land ownership of the parcels.

2. Alternative 2 – Modified Proposed Action: Approximately 1,910 acres of non-federal land would come into federal ownership, and up to approximately 1,580 acres of federal land would be transferred to Cook County.

The two purposes for this land exchange are as follows:

1) The purpose and need is to acquire and consolidate National Forest System land in the Boundary Waters Canoe Area Wilderness (BWCAW). According to the Superior

National Forest Land and Resource Management Plan (Forest Plan), acquisition of County administered lands within the BWCAW is Priority 1 (Forest Plan, p. 2-51, G-LA-2; see also p. 3-64). Priority 1 includes key tracts that are needed to protect and manage administrative or congressionally designated unique, proposed, or recommended areas. G-LA-5 (Forest Plan, p. 2-52) states that acquisition of State holdings (which includes Cook County lands) through land exchange will be limited and only if the public interest is well served. All of the proposed lands are desirable for inclusion in the National Forest System. The decision on this project will include rationale on public interest based on public input, professional knowledge and the information in the EA and project record.

2) The purpose and need is to allow for sustainable development for Cook County and to achieve federal cost savings in special use administration which in turn will result in more logical and efficient management.

Future Uses of Federal Land

In August of 2009, the Cook County Board of Commissioners passed a resolution with the following priorities for lands needed by Cook County, those priorities are listed below.

1. Gravel supply sites
2. Septage disposal sites
3. Communication tower sites
4. Fire hall sites
5. Affordable housing units
6. Recreation opportunity sites
7. Cemetery sites
8. Economic development sites

Future Uses of Non Federal Land

Under the action alternative, the County land would be managed by the Forest Service in accordance with Forest Plan direction and applicable laws for wilderness management.

Affected Species

The aquatic sensitive animal species analysis is based on Fiscal Year 2009 Monitoring and Evaluation Report (USDA Forest Service 2011a) and known occurrences of sensitive species. No specific animal surveys were conducted for this project but surveys were completed for vegetation management projects located across the Superior National Forest and the data from those projects is incorporated into the Monitoring and Evaluation Report. In addition, a review of the Minnesota Department of Natural Resources Natural Heritage Program database of element occurrences (MN DNR 2011), including Regional Forester sensitive species that are also State-listed threatened and endangered status was conducted (see USDA Forest Service 2004b, Appendix D-26 to D-69). Table 2, below, lists the sensitive species which are known or could occur in the project area and could be affected.

Table 2. Aquatic RFSS Known Or Suspected to Occur in Cook County Land Exchange Project Area

Common name ***Scientific name***	**Potential Habitat Present in project area (Federal/NonFederal)**	**Known Species Presence in project area**	**Habitat Summary**
Lake Sturgeon *Acipemser fulvescens*	No/No	No	large or deep-water lakes
Headwaters Chilostigman caddisfly *Chilostigma itascae*	Yes/Yes	No	non-forested wetlands that include wet meadows and bogs
Nipigon cisco *Coregonus nipigon*	No/Yes	No	large or deep-water lakes
Shortjaw cisco *Coregonus zenithicus*	No/Yes	No	large or deep-water lakes
Northern Brook lamprey *Ichthyomyzon fossor*	Yes/Yes	No	streams and rivers
Creek heelsplitter *Lasmigona compressa*	Yes/Yes	No	streams and rivers
Black Sandshell *Ligumia recta*	Yes/Yes	No	streams and rivers
Quebec Emerald Dragonfly *Somatochlora brevicincta*	Yes/Yes	No	non-forested wetlands that include wet meadows and bogs
Ebony boghaunter *Williamsonia fletcheri*	Yes/Yes	No	non-forested wetlands that include wet meadows and bogs

Affected Environment and Analysis Methodology

Existing Condition

Based on the Minnesota DNR's Rare Features Database (MNDNR 2012) there are no known aquatic RFSS occurrences on federal or non-federal parcels. As shown in Table 2, the federal parcels and non-federal parcels have similar habitat for aquatic RFSS. Both have some slow-moving open water habitat, both have lowland conifer swamp, both have non-forested wetlands, and both have adjacent lake and stream habitats. The non-federal parcels have almost twice as much wetland acres than federal parcels.

Analysis Area and Methods

The following assumptions cover this analysis. The area covered by the analysis of direct and indirect effects to Aquatic RFSS includes all of the Forest Service lands and all of the Cook County lands proposed for exchange. This analysis area was selected because this is where the land exchange and subsequent activitieswould occur which could potentially cause the direct and indirect effects to RFSS plants. The area covered by the cumulative effects analysis is the same as that for direct and indirect effects. This cumulative effects analysis area was chosen because all of the parcels involved in the exchange cover a sufficient area to include any other activities whose effects may overlap with effects from uses of the land to be exchanged.

Project proposal locations were checked against known locations of sensitive species as well as habitat types using geographical information system mapping. Minnesota Natural Heritage Program database (MN DNR 2011) and USFS data were among the data sets used for planning and analysis.

Habitat groups were used to help evaluate the potential effects of management activities on aquatic RFSS. Aquatic organisms were grouped by habitat to reduce the amount of repetition in the analysis. The impacts of the project on a given habitat would affect aquatic organisms that use that habitat similarly.

- **Habitat group 1** - Aquatic RFSS of non-forested wetlands that include wet meadows and bogs

  This habitat includes bogs and wet meadows classified by the National Wetland Inventory, Circular 39 (Shaw and Fredine 1971) wetland types 2 (wet meadows) and 8 (bogs). Federal parcels contain 92 acres and County parcels contain 197 acres of this habitat type. The following sensitive aquatic species use this habitat group and either occur in or have suitable habitat in the analysis area (Table 2): Quebec emerald dragonfly, ebony boghaunter dragonfly, and headwaters chilostigman caddisfly. These organisms use wet meadow with spring seeps;

sphagnum mosses, sedges, and several heaths dominate the ground layer in most cases. Some recent observations were also in rich swamp to poor fen habitats within a large, acid to minerotrophic peatland complexes as well as areas of low mineralizing potential such as near or within peat bogs. Larval environments tend to be inundated sphagnum or adjacent water surfaces or extreme headwater environments with streamlets and seeps within wet meadow and bog habitat (NatureServe 2011).

- **Habitat group 2** - Aquatic RFSS of streams and rivers

  The following sensitive aquatic species use this habitat group and either occur in or have suitable habitat in the analysis area (Table 2): northern brook lamprey creek heelsplitter mussel, and black sandshell mussel. The creek heelsplitter mussel typically occurs in small headwater streams and requires riverine habitat conditions to survive and proliferate (Anderson 2001, MN DNR 2002). The black sandshell mussel is primarily a riverine species that requires deep run or glide habitat in wide rivers with moderate current (USDA FS 2004a). Although the Superior National Forest is near the edge of this species range, it has been documented in several locations in the St. Louis River system and Little Fork River system (MN DNR 2011, MN DNR 2002). Because of their habitat and host fish requirements, these sensitive mussels may be affected by road construction activities that could potentially increase sedimentation and stream flow as well as create potential host fish migration barriers at stream crossings. Northern brook lamprey typically require moderately warm, low-gradient streams of medium size with soft substrate for larval burrowing and sections of higher gradient (riffle) reaches suitable for spawning (Becker 1983). As a result of these life cycle and habitat requirements, northern brook lamprey are sensitive to similar impacts as creek heelsplitter and black sandshell mussels.

- **Habitat group 3** - Aquatic RFSS of large or deep-water lakes

  The following sensitive aquatic species use this habitat group and either occur in or have suitable habitat in the analysis area (Table 2): lake sturgeon, Nipigon cisco and shortjaw cisco. Nipigon cisco and shortjaw cisco are known to occur on the Superior National Forest in deep, oligotrophic lakes along the U.S./Canada Border from South Lake (near Gunflint Lake) west to Loon Lake (near Lac LaCroix, Etnier 2011, NatureServe 2011). There are no records for populations of Nipigon or shortjaw cisco in the project area and potential habitat is extremely limited in the project area. Historical populations of lake sturgeon have been documented in several watersheds that intersect the Superior National Forest including Rainy Lake, Rainy River, Little Indian Sioux River, Loon River, Lac la Croix, Loon Lake, Crane Lake, Little Fork River, Shannon River, and Sturgeon River drainages (USDA FS 2004a, NatureServe 2011). There are no records of lake sturgeon in the project area and potential habitat within the project area is very unlikely (MN DNR 2011).

Environmental Consequences

Direct/Indirect Effects

Alternative 1

Under Alternative 1, it is likely the county land within the Boundary Waters Canoe Area Wilderness would remain as county land and that its current management as wilderness would continue. Development of these parcels would be limited to primitive recreation within a wilderness setting. Forest Service lands would continue to be managed under Forest Plan direction to maintain, protect, or improve habitat for all sensitive species (O-WL-18) and to ensure that management would not lead to a trend toward federal listing (S-WL-5). Because no management actions are proposed in Alternative 1, there would be no impacts to aquatic RFSS or any of the aquatic habitat groups. Alternative 1 would have **no impact** on any of the aquatic species in Table 2.

Alternative 2

Under Alternative 2 the Superior National Forest would acquire 1,910 acres of county land in the BWCAW. There would be no direct effects of the land exchange on aquatic RFSS or suitable habitat since this project would involve no management on acquired lands. The acquired lands would be managed within the context of primitive recreation within the BWCAW and under the 2004 Forest Plan, that provides direction to maintain, protect, or improve habitat for all sensitive species (O-WL-18) and to ensure that management would not lead to a trend toward federal listing (S-WL-5). Any routine portage or campsite maintenance activities that may occur on acquired parcels would be limited in extent and would therefore have minimal effects on aquatic RFSS and their habitat.

The Superior National Forest would convey up to 1,580 acres of federal land to Cook County. The current uses of these lands (e.g. as the location for a fire hall, radio tower, roads, etc.) would continue, and some further development would likely occur such as: gravel pits, septage disposal sites, Communication tower and fire hall sites, housing units, and other economic development sites. Future disturbance associated with any of the above developments could impact aquatic RFSS and their habitat. However, none of these developments would reach a scale or magnitude that would likely produce a viability concern for aquatic RFSS. Adequate suitable RFSS plant habitat would remain on the Superior National Forest to maintain viability, and the suitable habitat acquired as a result of this project would help offset suitable habitat lost as a result of the exchange.

- **Habitat group 1** - <u>Aquatic RFSS of non-forested wetlands that include wet meadows and bogs</u>

Development could have some minor impacts to suitable habitat for these species. Future, site specific development would be regulated under state and federal law (e.g. Minnesota Protected Waters 103g and Wetland Protection Act, and the federal Clean Water Act). Any county development within the exchanged parcels would require a

permit from the U.S. Army Corps of Engineers for impacts to navigable waters and jurisdictional wetlands. Given the prevalence of suitable habitat over their range, the overall populations are not considered fragile and localized extirpations would likely be re-inhabited shortly after habitat recovery (NatureServe, 2011). Given the parcels acquired and the parcels conveyed through an exchange, there would be a net gain of 105 acres of this habitat type to the federal estate. Overall, potential direct and indirect effects would be considered local and minor over the project area and only a small fraction of suitable habitat in the analysis area may be impacted by development activities.

Alternative 2 ***may impact individuals but are not likely to cause a trend to Federal listing or loss of viability*** for Quebec emerald dragonfly, ebony boghaunter dragonfly, and headwaters chilostigman caddisfly.

- **Habitat group 2** - Aquatic RFSS of streams and rivers

Development may occur near streams and rivers or roads may be developed that cross wetlands and creeks that could affect water quality, sedimentation, and aquatic organism passage. Some of the lands that would go out of federal ownership already have existing fire halls, radio towers, and roads; however, none of the lands being acquired have any development on them and this would represent a net gain of potential suitable aquatic RFSS habitat. Through state and federal permitting, county developments would require a permit from the U.S. Army Corps of Engineers for impacts to navigable waters and jurisdictional wetlands and the State of Minnesota Protected Waters Permit. These have been developed to protect water quality and maintain riparian ecological functions, as well as serve to protect aquatic species like the northern brook lamprey, creek heelsplitter mussel and black sandshell mussel and their habitats.

Alternative 2 ***may impact individuals but are not likely to cause a trend to Federal listing or loss of viability*** for northern brook lamprey, creek heelsplitter mussel, and black sandshell mussel.

- **Habitat group 3** - Aquatic RFSS of large or deep-water lakes

Development could affect water quality/quantity but probably not to the extent of degrading this habitat group. The likelihood of development being located near one of these habitat types is remote since suitable habitat is not located within or adjacent to any of the federal parcels (Table 2). In addition, any potential development of parcels located near lakes would be required to meet State of Minnesota Shoreland Development Standards within each lake's Shoreland Management Lake Classification (Devil Track Lake, Recreational Development Class; Little John and Bogus Lakes, Natural Environment Class). Parcels located within the Boundary Waters Canoe Area Wilderness would be remain un-developed, effectively

maintaining water quality and ecological functions, as well as serve to protect the lake sturgeon, Nipigon cisco and shorthaw cisco.

Alternative 2 ***may impact individuals but are not likely to cause a trend to Federal listing or loss of viability*** for lake sturgeon, Nipigon cisco and shortjaw cisco.

Over the time frame of this analysis, county development activities of exchanged parcels could cause minimal impacts to suitable habitat for sensitive aquatic wildlife listed in Table 2 (see Future Uses of Federal Land, above). These developments would be subject to State of Minnesota (Wetland Conservation Act and Protected Waters 103g) and Federal (Section 404 of the Clean Water Act) laws and regulations. County, State, and Federal review of development plans would effectively avoid, minimize, and mitigate impacts to sensitive aquatic wildlife and their suitable habitat. The viability of aquatic RFSS species and habitat would remain intact since the acquired county land within the BWCAW would help offset suitable habitat lost as a result of the exchange.

Cumulative Effects

Alternative 1

For Alternative 1, there would be no cumulative effects to these species since no development would occur under Alternative 1.

Alternative 2

The cumulative effects of the Cook County Land Exchange EA on sensitive aquatic wildlife would be minor. Past, present, and future actions that contribute to these low levels of cumulative effects are described below by Habitat Group.

- **Habitat group 1** - <u>Aquatic RFSS of non-forested wetlands that include wet meadows and bogs</u>

Historical events may have affected individuals, populations, and habitat of the Quebec emerald dragonfly, ebony boghaunter dragonfly, and headwaters chilostigman caddisfly within the project area, the Superior National Forest, and adjacent non-federal lands. It is possible that historical road building associated with timber harvesting, trail construction over lowlands, fires and floods may have affected these species and their habitat in the past by altering lake, stream and wetland water levels, increasing sediment input, elevating water temperatures, and manipulating stream and wetland flows. Objectives, standards and guidelines in the 2004 Forest Plan will help to ensure that current and future USFS activities will not contribute to cumulative effects. In addition, state natural resource managers follow similar established best management practices to minimize cumulative effects to the Quebec emerald dragonfly, ebony boghaunter dragonfly, and headwaters chilostigman caddisfly or their habitat.

- **Habitat group 2** - Aquatic RFSS of streams and rivers

It is likely that historical events have affected individuals and populations of this habitat group within the project area, the Superior National Forest, and on adjacent non-federal lands. Historical timber harvest, road and trail construction, and poorly designed stream crossings, may have affected habitat and survival by altering stream channels and flow, contributing sediment into local streams, increasing stream temperatures, and restricting migration (USDA Forest Service 2004b). Standards and guidelines in the Forest Plan will help to ensure that USFS activities will not contribute to cumulative effects. In addition to Federal standards and guidelines, State, private and local land owners and managers follow established best management practices that should also contribute to eliminating cumulative effects. Provided that best management practices are implemented by all land owners and managers, there should be no cumulative effects to northern brook lamprey, creek heelsplitter mussel, and black sandshell mussel and associated habitat.

- **Habitat group 3** - Aquatic RFSS of large or deep-water lakes

It is likely that historical events have affected individuals and populations of this habitat group within the Superior National Forest, and on adjacent non-federal lands. Historical fisheries harvest and management as well as dam construction have influenced the distribution and abundance of these species. Standards and guidelines in the Forest Plan will help to ensure that USFS activities will not contribute to cumulative effects. In addition to Federal standards and guidelines, State, private and local land owners and managers follow established best management practices that should also contribute to eliminating cumulative effects. Provided that best management practices are implemented by all land owners and managers, there should be no cumulative effects to the shortjaw cisco, Nipigon cisco, and lake sturgeon.

Determination

For Alternative 1, the proposed activities would have ***no impact*** on Quebec emerald dragonfly, ebony boghaunter dragonfly, headwaters chilostigman caddisfly, northern brook lamprey, creek heelsplitter mussel, black sandshell mussel, lake sturgeon, Nipigon cisco and shortjaw cisco.

For Alternative 2, the proposed activities ***may impact individuals*** of Quebec emerald dragonfly, ebony boghaunter dragonfly, headwaters chilostigman caddisfly, northern brook lamprey, creek heelsplitter mussel, black sandshell mussel, lake sturgeon, Nipigon cisco and shortjaw cisco ***but are not likely to cause a trend to federal listing or loss of viability.***

References

Anderson, L.A. 2001. The potential impacts of the Winton Hydropower Project on freshwater mussels. Natural Resources Research Institute, Center for Water and the Environment. Duluth, Minnesota. 14pp.

Becker, G.C. 1983. Fishes of Wisconsin. The University of Wisconsin Press, Madison, Wisconsin. 1052 pp.

Etnier, D. 2011. Unpublished data from species determinations of ciscoes field collections on the Superior National Forest Lakes, 2010.

Minnesota Department of Natural Resources - Natural Heritage and Non-Game Research Program. 2011. Biotics Rare Features Database: rare animal occurrences on the Superior National Forest. St. Paul, Minnesota.

Minnesota Department of Natural Resources. 2002. Final Report: Mussel (Bivalvia: Unionidae) survey of the Superior National Forest. Prepared for the Superior National Forest. Minnesota Department of Natural Resources, Ecological Services Division. St. Paul, Minnesota. 16pp.

NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1, Feb. 2, 2009; last updated July 2011. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer.

USDA Forest Service. 2004a. Regional Forester Sensitive Animals Biological Evaluation for Forest Plan Revision on the Chippewa and Superior National Forests. Superior National Forest, Duluth, MN. 203 p.

USDA Forest Service. 2004b. Forest Plan Revision Environmental Impact Statement. Superior National Forest, Duluth, MN.

USDA Forest Service. 2004c. Forest Plan Revision, Chippewa and Superior National Forests, Regional Forester Sensitive Plants Biological Evaluation. On file with Forest Supervisor, Superior National Forest, 8901 Grand Ave. Place, Duluth, Minnesota 55808. 67p.

USDA Forest Service 2011a. Fiscal Year 2009 Monitoring and Evaluation Report. Superior National Forest, Duluth, MN.